IN THE CLAIMS:

All of the pending claims, 1-4, 15, 16, 25-28, 33-35, 47, 54, 59 and 60 are set forth below. The status of each claim is indicated with one of (original), (previously amended), (previously added) or (cancelled).

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1. (PREVIOUSLY AMENDED) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

2. (ORIGINAL) A method according to claim 1, wherein each of said segments is formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

3. (ORIGINAL) A method according to claim 1, wherein said optical signal has a wavelength of about 1.55 μm.

4. (ORIGINAL) A method according to claim 1, wherein said optical signal comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

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14. (CANCELLED)

15. (PREVIOUSLY AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

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an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent ones of said segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,

wherein

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

16. (PREVIOUSLY AMENDED) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent ones of said segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,

wherein

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

17. (CANCELLED)

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24. (CANCELLED)

25. (ORIGINAL) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

26. (ORIGINAL) A method according to claim 25, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

27. (ORIGINAL) A method according to claim 25, wherein an optical signal supplied

by the optical transmitter has a wavelength of about 1.55 μm.

28. (ORIGINAL) A method according to claim 25, wherein an optical signal supplied by the optical transmitter comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

29. (CANCELLED)

30. (CANCELLED)

31. (CANCELLED)

32. (CANCELLED)

33. (ORIGINAL) A system comprising:

an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

34. (ORIGINAL) A system according to claim 33, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

35. (ORIGINAL) A system according to claim 33, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

36. (CANCELLED)

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46. (CANCELLED)

47. (ORIGINAL) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

48. (CANCELLED)

49. (CANCELLED)

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53. (CANCELLED)

54. (ORIGINAL) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical receiver.

55. (CANCELLED)

56. (CANCELLED)

57. (CANCELLED)

58. (CANCELLED)

59. (PREVIOUSLY ADDED) A system according to claim 15, wherein each of said segments is formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

60. (PREVIOUSLY ADDED) A system according to claim 15, wherein said optical signal has a wavelength of about 1.55 μm.

61. (CANCELLED)

62. (CANCELLED)